

Department of Energy

Richland Operations Office P.O. Box 550 Richland, Washington 99352

04-RCA-0031

NOV 25 2003

Dr. A. W. Conklin, Supervisor Air Emissions and Defense Waste Section Washington State Department of Health P.O. Box 47827 Olympia, Washington 98504 RECEIVED
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EDMC

Dear Dr. Conklin:

RESPONSE TO THE WASHINGTON STATE DEPARTMENT OF HEALTH (DOH), AIR-03-1013, QUESTIONS EXPRESSED FOR THE T PLANT AS LOW AS REASONABLY ACHIEVABLE CONTROL TECHNOLOGY (ALARACT) DEMONSTRATION REVIEW

This letter provides responses to the DOH T Plant Complex ALARACT Demonstration review questions stated in the DOH letter AIR-03-1013, dated October 27, 2003. Each of the DOH questions that were attached to AIR-03-1013 is addressed separately in the enclosure. Only questions three and five apply to the ALARACT Demonstration pursuant to the definition offered under Washington Administrative Code (WAC) 246-247. The enclosed responses supplement the reference ALARACT Demonstration to facilitate approval and address the modification concerns.

The baseline activities described in the ALARACT Demonstration have been ongoing since before 1988. Notice of Construction (NOC) applications since then have referred to these activities with generic descriptions. Revision 2 to the K Basin Sludge Storage NOC was submitted (03-RCA-0387, October 1, 2003) to further describe the baseline activities and associated PTE. Processing of the Revision 2 K Basin Sludge NOC application is appreciated.

If you have any questions regarding this matter, please contact Mary F. Jarvis, of my staff, on (509) 376-2256 or Greg L. Sinton, Waste Management Division on (509) 373-7939.

Sincerely,

Joel Hebdon, Director

Regulatory Compliance and Analysis Division

RCA:MFJ

Enclosure

cc: See page 2

Dr. A. W. Conklin 04-RCA-0031

cc w/encl:

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Administrative Record

Environmental Portal, LMSI

Enclosure Responses to AIR-03-1013

Response to Washington Department of Health letter AIR-03-103

The T Plant operations were in place prior to August 10, 1988, the original effective date of the WAC 246-247 Chapter. T Plant was registered as part of the general registration of the Hanford Site sources, first reflected in the August 15, 1989 issuance of the FF-01 Hanford Reservation Permit. The level of descriptive detail provided for T Plant as part of the registration was very general, consistent with the instructions on the registration form from WDOH. The form's guidance called for a one sentence description of each facility, along with annual emission data for each source. The T Plant has been included in the series of registrations for renewal of the FF-01 permit. Subsequent to the first renewal registration, WDOH called for detailed supplemental registration information for four major facilities, not including T Plant. The registration of the T Plant for approval under the FF-01 permit represented the only air license authorizing operations at T Plant from August 15, 1989 until WDOH approval of the first T Plant NOC, "Radioactive Air Emissions Notice of Construction for T Plant Complex Secondary Containment and Leak Detection Upgrades" (6/12/1996).

1. Section 2.1 of the ALARACT describes mixed waste throughput. The following limits are claimed: 250,000 gallons of containerized mixed waste, 8,792 canisters of uncontainerized waste, treatment of 150 metric tons/day of mixed waste, and to treat and store unspecified quantities of liquid mixed waste in tank systems. What is the radioactive air license authorizing each of these mixed waste activities?

Response: These described limits (note, 8792 **cubic meters** as stated in the ALARACT demonstration rather than canisters,) provide detail about 221-T operations that existed at the time of issuance of the original FF-01 Hanford Reservation Permit. Since that time, NOC applications have been submitted and approved for WAC 246-247 modifications at 221-T. Currently, 221-T operates under the following radioactive air emissions approvals:

Hanford Air Operating Permit (7/2/2001)

AIR 01-1010 "Radioactive Air Emissions Notice of Construction for T Plant Fuel Removal Project" (10/16/2001)

AIR 02-509 "Radioactive Air Emissions Notice of Construction for 291-T-1 Exhaust Fan Replacement" (5/22/2002)

AIR 02-803 "Radioactive Air Emissions Notice of Construction for Storage in T Plant of Sludge from K Basins" (8/8/2002)

AIR 02-704 "Radioactive Air Emissions Notice of Construction for Entering and Characterizing of the 224-T Facility Process Cells" (7/25/2002)

AIR 02-1215 "Radioactive Air Emissions Notice of Construction for Sitewide Vented Container Storage" (12/13/2002)

AIR 02-1214 "Radioactive Air Emissions Notice of Construction for T Plant Complex Secondary Containment and Leak Detection Upgrades" (12/13/2002)

2. Section 2.2 of the ALARACT describes radioactive waste throughput. A flexible zone system is described, which would at present limit the possession of radionuclides to 1100 DE-Curies (11 zones times 100 DE-Curies per zone). What is the radioactive air license authorizing these radioactive waste activities?

Response: Changes in APQ are within the jurisdiction of DOE. Zone limits as described in the ALARACT demonstration reflect the current safety authorization basis, as determined by DOE. The zone limits have fluctuated up and down according to mission requirements, in accordance with DOE requirements. Since issuance of the original FF-01 Hanford Reservation Permit in 1989, NOC applications have been submitted for those activities triggering a modification at 221-T. Currently, 221-T operates under the radioactive air emissions approvals listed in response to Question 1 above.

3. Measured stack emissions for T-Plant are significantly greater than would be consistent with the NDA result. Please explain this seeming discrepancy. If it is claimed that the stack liner is a significant source of unabated emissions, provide the data that support this.

Response: The stack liner has been inspected and found to be in good condition as demonstrated in the videos provided to WDOH on April 2, 2003, and is not claimed as a significant source of unabated emissions. Actual emissions from the 291-T-1 Stack, from 1991 to present, reflect resuspension of contamination in the ductwork, fans (#1 and #2) and plenum downstream of the existing filtration system. Fans #1 and #2 are being replaced with fan #4.

4. In 1989 and 1991, the T-Plant registered activities were the repair and decontamination of contaminated equipment, and the assay of solid waste for transuranics. The 1995 T-Plant Air Operating Permit application listed an expanded activity set, including the treatment and storage of containerized waste and contaminated equipment and materials. The 2003 ALARACT reflects further expansion of the T-Plant activities list to include uncontainerized waste and mixed waste. Cite the approved radioactive air submittals that support the expansion of operations at T-Plant between 1991 and the present.

Response: As discussed in the opening statement of this enclosure, level of detail associated with T Plant activities are consistent with WDOH regulations. The registration of the T Plant for approval under the FF-01 permit represented the only air license authorizing operations at T Plant from August 15, 1989 until approval of the first T Plant NOC, "Radioactive Air Emissions Notice of Construction for T Plant Complex Secondary Containment and Leak Detection Upgrades" (6/12/1996). NOC applications are submitted when modifications are planned to the facility which will result in an increase to the PTE. All other routine activities continue as outlined in the original registration. Currently, 221-T operates under radioactive air emissions approvals listed in the response to Question 1.

5. Provide the calculations and references that support Section 4.2.4 of the ALARACT.

Response: The references for the calculations in Section 4.2.4 are Appendix A of HNF-EP-0063 and the NDA reports. Appendix A was provided to WDOH in July 2001 and the NDA reports were provided to WDOH in July 2001 and April 2003. Calculations are provided in the spreadsheets below, consisting of DE-Ci calculations canyon deck smearable contamination survey results and calculations. The analysis report of the sample from pre-filter #4 is also provided.

DE-Ci Calculations

	DE-Ci	Isotopic Ratio (Cs-				Release
Radionuclide	Factor	137=1)	DE-Ci Ratio	DE-Ci	Ci	Fraction
Sr-90	3.04E-03	1.3E+00	2.1E+01	1.0E+01	3.3E+03	
Cs-137	7.44E-05	1.0E+00	3.9E-01	1.9E-01	2.5E+03	2.8E-07
Pu-239/240	1.00E+00	5.8E-01	1.8E+01	8.8E+00	8.8E+00	
Am-241	1.03E+00	5.8E-02	1.9E+00	9.1E-01	8.8E-01	•
Total alpha		6.3E-01	2.0E+01	9.8E+00	9.7E+00	
Total beta/gamma		2.3E+00	2.1E+01	1.0E+01	5.9E+03	,
beta/alpha ratio					6.0E+02	
DE-Ci Total			4.1E+01	2.0E+01		

Assumptions:

beta/alpha ratio = 600:1 from SWITs data for all boxes processed/stored in canyon in 2002

Sr-90 to Cs-137 ratio = 1.3:1 from pre-filter analysis

Pu-239/240 to Am-241 ratio = 10:1 from pre-filter analysis

Sr-90 + Cs-137 to Pu-239/240 ratio = 4:1 from pre-filter analysis

Total DE-Ci = 20

Conservatively assuming Cs-137 loading on pre-filter is associated with 2002 boxes,

Column F represents Ci associated with the 20 DE-Ci

Release Fraction = Ci Cs-137 (NDA)/Ci Cs-137 (20 DE-Ci)

Canyon Deck Smearable Contamination Survey	Results
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Removable Removable Removable Removable										
	beta/gamma Ci *	beta/gamma Ci	beta/gamma Ci	beta/gamma Ci						
Conver Deale	CI	- 01	U	Ol						
Canyon Deck	10/05/2002	10/07/2002	12/04/2002	06/16/2003 ^{**}						
Survey Report	10/03/2002	10/07/2002	12/04/2002	06/16/2003						
Process Cell 3L	5.1E-06	E 4E 00	4.05.06	4.00.00						
ł .		5.1E-06	1.0E-06	1.0E-06						
3R 4L	5.1E-06	5.1E-06	5.1E-06	5.1E-06						
1	open	open	open	open						
4R	1.5E-05	1.5E-05	1.5E-05	5.1E-06						
5L	1.5E-05	1.5E-05	1.5E-05	5.1E-06						
5R	1.3E-05	1.3E-05	1.3E-05	2.5E-06						
6L	5.1E-06	2.5E-05	5.1E-06	5.1E-06						
6R	open	open	open	open						
7L	7.2E-05	8.3E-05	7.2E-05	5.1E-06						
7R	2.5E-06	2.5E-06	2.5E-06	2.5E-06						
8L	1.5E-05	2.2E-05	1.5E-05	5.1E-06						
8R	3.3E-05	3.8E-05	3.3E-05	5.1E-06						
9L	8.1E-05	8.3E-05	8.1E-05	1.0E-05						
9R	2.7E-05	3.2E-05	2.7E-05	2.0E-05						
10L	1.3E-04	1.4E-04	1.3E-04	5.1E-06						
10R	3.3E-05	2.0E-04	2.0E-04	5.7E-05						
11L	2.3E-04	1.7E-03	2.3E-04	2.0E-04						
11R	1.0E-04	1.0E-04	1.0E-04	1.0E-04						
12L	open	open	open	open						
12R	open	open	open	open						
13L	2.5E-05	1.2E-04	4.6E-05	5.1E-06						
13R	2.5E-05	1.8E-04	1.8E-04	1.0E-05						
14L	2.5E-05	1.8E-04	1.0E-04	2.0E-05						
14R	2.5E-05	2.0E-04	2.0E-04	1.0E-05						
15L	2.5E-05	2.5E-05	2.5E-05	1.5E-05						
15R	8.3E-05	2.5E-04	8.3E-05	5.1E-06						
16L	8.3E-05	2.5E-04	8.3E-05	5.1E-06						
16R	2.5E-04	2.5E-04	5.1E-06	5.1E-06						
17L	2.5E-04	2.5E-04	5.1E-06	5.1E-06						
17R	2.5E-04	2.5E-04	5.1E-06	5.1E-06						
18L	2.5E-05	2.5E-05	2.5E-05	1.0E-05						
18R	2.5E-05	2.5E-05	2.5E-05	5.1E-06						
19L	5.1E-06	2.5E-05	5.1E-06	5.1E-06						
19R	5.1E-06	5.1E-06	5.1E-06	5.1E-06						
20L	5.1E-06	2.5E-05	5.1E-06	5.1E-06						
20R	5.1E-06	5.1E-06	5.1E-06	5.1E-06						
Walkway	1.3E-04	6.6E-04	2.3E-04	3.7E-05						
	· -									
Total Ci (as Cs-137)	2.0E-03	5.3E-03	2.0E-03	6.0E-04						
Ci = Surface Area (

^{*} Ci = Surface Area (m²) x Survey Reading (dpm/100 cm²) x 4.5E-11 (Ci per dpm/100cm²) **Survey report shown in Figure A1 of HNF-17211

Report for T-Plant (TP Filt 3/02 Sample)										<u> </u>			
													Page: 1
Project Name	Customer ID#	Sample Portion	Lab ID#	Analyte	Unit	Standard %	Blank	Result	Avg	RPD %	Spk Rec %	Det Limit	Count Err
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Sr-89/90 Env. Solids	uCi/g	106	<3.24e-05	0.324	n/a	n/a	n/a	6.30E-05	0.45
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Pu-239/240 by TRU- SPEC Resin	uCi/g	89.7	<2.93e-03	0.231	n/a	n/a	n/a	0.012	2
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Pu-238 by TRU-SPEC Resin IonEx	uCi/g	n/a	<2.93e-03	< 0.0117	n/a	n/a	n/a	0.012	7.4
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Sodium-22 by GEA	uCi/g	n/a	<2.04e-05	<1.17e-04	n/a	n/a	n/a	1.20E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Sodium-24 by GEA	uCi/g	n/a	<1.78e-05	<2.29e-05	n/a	n/a	n/a	2.30E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Potassium-40 by GEA	uCi/g	n/a	<6.62e-04	<7.02e-04	n/a	n/a	n/a	7.00E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cobalt-56 by GEA	uCi/g	n/a	<1.81e-05	<2.65e-05	n/a	n/a	n/a	2.60E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cobalt-57 by GEA	uCi/g	n/a	<1.19e-05	<9.32e-05	n/a	n/a	n/a	9.30E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cobalt-60 by GEA	uCi/g	83.2	<2.13e-05	<4.64e-05	n/a	n/a	n/a	4.60E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Selenium-75 by GEA	uCi/g	n/a	<2.11e-05	<1.64e-04	n/a	n/a	n/a	1.60E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Strontium-85 by GEA	uCi/g	n/a	<2.10e-05	<1.47e-04	n/a	n/a	n/a	1.50E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Yttrium-88 by GEA	uCi/g	n/a	<1.92e-05	<1.91e-05	n/a	n/a	n/a	1.90E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Niobium-94 by GEA	uCi/g	n/a	<2.07e-05	<3.32e-05	n/a	n/a	n/a	3.30E-05	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Zr/Nb-95 by GEA	uCi/g	n/a	<8.10e-05	<1.75e-04	n/a	n/a	n/a	1.70E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Ruthenium-103 by GEA	uCi/g	n/a	<1.74e-05	<1.67e-04	n/a	n/a	n/a	1.70E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Ru/Rh-106 by GEA	uCi/g	n/a	<3.69e-04	<2.16e-03	n/a	n/a	n/a	2.20E-03	n∕a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cadmium-109 by GEA	uCi/g	n/a	<3.68e-04	<3.00e-03	n/a	n/a	n/a	3.00E-03	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Tin-113 by GEA	uCi/g	n/a	<2.25e-05	<2.24e-04	n/a	n/a	n/a	2.20E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Antimony-125 by GEA	uCi/g	n/a	<5.30e-05	<5.79 e- 04	n/a	n/a	n/a	5.80E-04	· n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Iodine-131 by GEA	uCi/g	n/a	<1.60e-05	<1.59e-04	n/a	n/a	n/a	1.60E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cesium-134 by GEA	uCi/g	n/a	<1.80e-05	<1.07e-04	n/a	n/a	n/a	1.10E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Cesium-137 by GEA	uCi/g	88.7	<3.37e-05	0.244	n/a	n/a	n/a	n/a	0.3
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Ce/Pr-144 by GEA	uCi/g	n/a	<1.73e-04	<1.35e-03	n/a	n/a	n/a	1.40E-03	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Europium-152 by GEA	uCi/g	n/a	<3.62e-05	<2.81e-04	n/a	n/a	n/a	2.80E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Europium-154 by GEA	uCi/g	n/a	<5.94e-05	3.40E-04	n/a	n/a	n/a	n/a	24
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Europium-155 by GEA	uCi/g	n/a	<4.31e-05	<3.43e-04	n/a	n/a	n/a	3.40E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Mercury-203 by GEA	uCi/g	n/a	<1.50e-05	<1.22e-04	n/a	n/a	n/a	1.20E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Thallium-208 by GEA	uCi/g	n/a	<1.86e-04	<1.57e-03	n/a	n/a	n/a	1.60E-03	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Bismuth-212 by GEA	uCi/g	n/a	<2.78e-04	<4.65e-04	n/a	n/a	n/a	4.60E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Lead-212 by GEA	uCi/g	n/a	<2.89e-05	<2.16e-04	n/a	n/a	n/a	2.20E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Bismuth-214 by GEA	uCi/g	n/a	<5.26e-05	<2.33e-04	n/a	n/a	n/a	2.30E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Lead-214 by GEA	uCi/g	n/a	<4.19e-05	<3.41e-04	n/a	n/a	n/a	3.40E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Radium-224 by GEA	uCi/g	n/a	<3.03e-04	<2.38e-03	n/a	n/a	n/a	2.40E-03	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Radium-226 by GEA	uCi/g	n/a	<2,95e-04	<2.48e-03	n/a	n/a	n/a	2.50E-03	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Actinium-228 by GEA	uCi/g	n/a	<9.17e-05	<1.20e-04	n/a	n/a	n/a	1.20E-04	n/a
TP FILT 03/02	221T-01-191	PARENT	S02TP00026	Thorium-228 by GEA	uCi/g	n/a	<1.17e-03	<9.21e-03	n/a	n/a	n/a	9.20E-03	n/a

221T-01-191	PARENT	S02TP00026	Thorium-229 by GEA	uCi/g	n/a	<5.37e-05	<4.34e-04	n/a	n/a	n/a	4.30E-04	n/a
221T-01-191	PARENT	S02TP00026	Uranium/Thorium-233	uCi/g	n/a	< 0.0101	< 0.0860	n/a	n/a	n/a	0.086	n/a
	·		by GEA							•		
221T-01-191	PARENT	S02TP00026	•	uCi/g	n/a	<3.58e-05	<2.80e-04	n/a	n/a	n/a	2.80E-04	n/a
221T 01 101	ህ ላ ነ ን ሙእነጥ	COSTRONOS		nCl/m	+ lo ·	~2 14° 02	~4 80 - 02				4.000.03	,
2211-01-171	FAREIVI	5021100020	•	uCI/g	n/a	\3.146-03	<4.62e-03	n/a	n/a	n/a	4.80E-03	n/a
221T-01-191	PARENT	S02TP00026	Thorium-234 by GEA	uCi/g	n/a	<7.71e-04	<6.42e-03	n/a	n/a	n/a	6.40B-03	n/a
221T-01-191	PARENT '	S02TP00026	Uranium-235 by GEA	-	p/a	<1.81e-05	<1.51e-04	n/a	n/a	n/a	-	n/a
221T-01-191	PARENT	S02TP00026	Neptunium-237 by GEA	_	n/a	<1.15e-04	<9.09e-04	n/a	n/a	n/a		n/a
221T-01-191	PARENT	S02TP00026		_	n/a	<4.79e-05	<3.77e-04	n/a				n/a
221T-01-191	PARENT	S02TP00026	Plutonium-239 by GEA	~	n/a	< 0.160	<1.22					n/a
221T-01-191	PARENT		Americium-241 by GEA	-	n/a	<1.04e-04						25
221T-01-191	PARENT		Americium-243 by GEA	-	n/a	<3.38e-05						n/a
	PARENT			_		•	•					3.7
	111111111	50211 00020	•	uch g	107	13.000-0 3	0.025	χι/ a	U/ a	ma.	7.0015-03	3.7
221T-01-191	PARENT	S02TP00026	Cm-243/244 by TRU-	uCi/g	n/a	<5.00e-03	<7.57e-03	n/a	n/a	n/a	7.60E-03	1.00E+02
			SPEC Resin	_			•					
221T-01-191	PARENT	S02TP00026	Alpha Env: Solids/Miscs	uCi/g	102	<4.67e-05	0.037	n/a	n/a	n/a	1.10E-04	2.8
221T-01-191	PARENT	S02TP00026	Beta in Env. Solids/Misc	цСi/g	107	<1.82e-04	0.915	n/a	n/a	n/a	3 80E-04	0.45
	221T-01-191	221T-01-191 PARENT	221T-01-191 PARENT S02TP00026 221T-01-191 PARENT S02TP00026	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 by GEA 221T-01-191 PARENT S02TP00026 Protactinium-233 by GEA 221T-01-191 PARENT S02TP00026 Protactinium-234m by GEA 221T-01-191 PARENT S02TP00026 Thorium-234 by GEA 221T-01-191 PARENT S02TP00026 Uranium-235 by GEA 221T-01-191 PARENT S02TP00026 Neptunium-237 by GEA 221T-01-191 PARENT S02TP00026 Neptunium-239 by GEA 221T-01-191 PARENT S02TP00026 Plutonium-239 by GEA 221T-01-191 PARENT S02TP00026 Americium-241 by GEA 221T-01-191 PARENT S02TP00026 Am-241 by TRU-SPEC Resin IonEx 221T-01-191 PARENT S02TP00026 Cm-243/244 by TRU-SPEC Resin 221T-01-191 PARENT S02TP00026 Alpha Env: Solids/Miscs	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 by GEA uCi/g by GEA 221T-01-191 PARENT S02TP00026 Protactinium-233 by GEA uCi/g GEA 221T-01-191 PARENT S02TP00026 Protactinium-234m by GEA uCi/g GEA 221T-01-191 PARENT S02TP00026 Thorium-234 by GEA uCi/g UCi/g GEA 221T-01-191 PARENT S02TP00026 Uranium-235 by GEA uCi/g UCi/g GEA 221T-01-191 PARENT S02TP00026 Neptunium-237 by GEA uCi/g UCi/g GEA 221T-01-191 PARENT S02TP00026 Plutonium-239 by GEA uCi/g UCi/g GEA 221T-01-191 PARENT S02TP00026 Americium-241 by GEA uCi/g UCi/g GEA 221T-01-191 PARENT S02TP00026 Am-241 by TRU-SPEC uCi/g Resin IonEx 221T-01-191 PARENT S02TP00026 Cm-243/244 by TRU-UCi/g SPEC Resin 221T-01-191 PARENT S02TP00026 Alpha Env: Solids/Miscs uCi/g	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Protactinium-233 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Protactinium-234m by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Thorium-234 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Uranium-235 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Neptunium-237 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Neptunium-239 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Americium-241 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Americium-243 by GEA uCi/g n/a 221T-01-191 PARENT S02TP00026 Am-241 by TRU-SPEC uCi/g n/a 221T-01-191 PARENT S02TP00026 Cm-243/244 by TRU- uCi/g n/a 221T-01-191	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 by GEA uCi/g n/a <0.0101 221T-01-191 PARENT S02TP00026 Protactinium-233 by GEA uCi/g n/a <3.58e-05	221T-01-191	221T-01-191	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 uCi/g n/a <0.0101 <0.0860 n/a n/a by GEA	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 uCi/g n/a <0.0101 <0.0860 n/a n/a n/a n/a n/a n/a by GEA	221T-01-191 PARENT S02TP00026 Uranium/Thorium-233 uCi/g n/a <0.0101 <0.0860 n/a n/a n/a 0.086

- 6. Provide the present radioactive air license authorizing the performance of each specific Reference 1, Section 1 activities in each area listed below:
 - a. The railroad tunnel;
 - b. The canyon deck and associated spaces;
 - c. The process cells, by individual cell (including the head end);
 - d. The craneway;

Response: NOC application approvals for a, b, c, and d area (exhausting to the 291-T-1 Stack Emission Unit) are as follows:

Air 01-1010 "Radioactive Air Emissions Notice of Construction for T Plant Fuel Removal Project" (10/16/2001)

AIR 02-509 "Radioactive Air Emissions Notice of Construction for 291-T-1 Exhaust Fan Replacement" (5/22/2002)

AIR 02-803 "Radioactive Air Emissions Notice of Construction for Storage in T Plant of Sludge from K Basins" (8/8/2002)

Hanford Air Operating Permit (7/2/2001, incorporating FF-01)

- e. The piping gallery;
- f. The electrical gallery;
- g. The operating gallery;

Response: The NOC application approvals which applies to e, f, and g areas which are not HEPA filtered (200 Area Diffuse and Fugitive Emission Unit) is:

AIR 02-1215 "Radioactive Air Emissions Notice of Construction for Sitewide Vented Container Storage" (12/13/2002)

AIR 02-303 "Radioactive Air Emissions Notice of Construction For HEPA Filtered Vacuum Radioactive Air Emission Units" (03/06/2002)

Hanford Air Operating Permit (7/2/2001, incorporating FF-01)

- h. The 291-T-1 stack liner;
- i. The air tunnel;

Response: The NOC application approvals which apply to the stack liner and air tunnel (exhausting to the 291-T-1 Stack Emission Unit) are the same as those applied to the canyon and process cells (see 6.b and 6.c, above).

Hanford Air Operating Permit (7/2/2001, incorporating FF-01)

j. The T-2706 building.

Response: The NOC application approval for 2706-T is:

AIR 02-1214 "Radioactive Air Emissions Notice of Construction for T Plant Complex Secondary Containment and Leak Detection Upgrades" (12/13/2002)

7. If no radioactive air licenses may be cited in response to Questions 1, 2, 4, or 6, please explain the justification for not having such licenses in place.

Response: The licenses have been cited in responses to Questions 1, 2, 4, and 6.